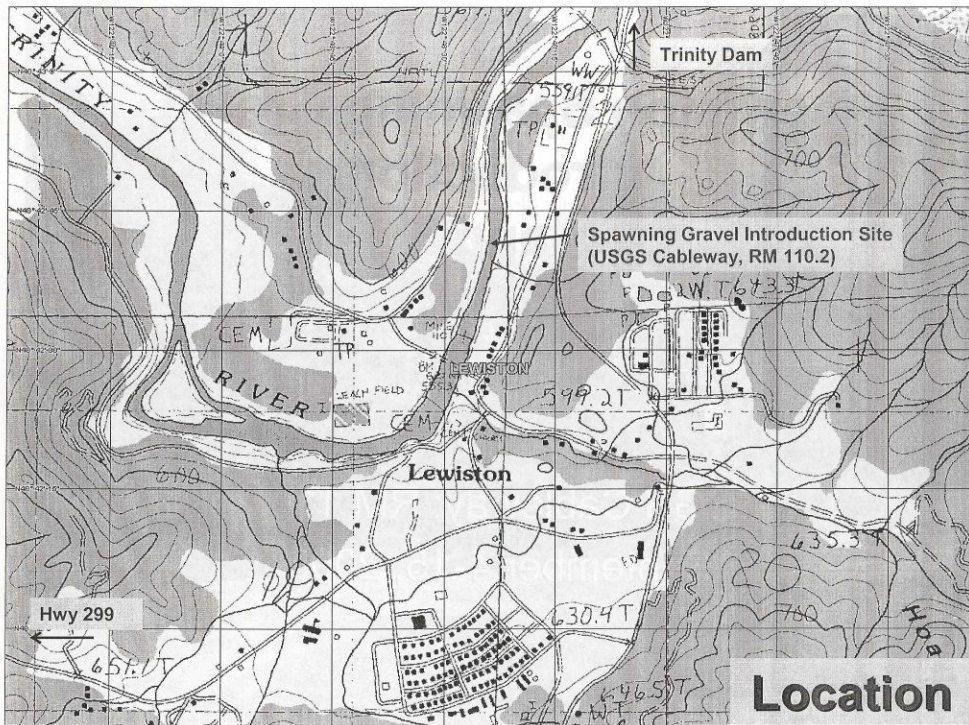
A black and white photograph of a cableway tower on the left, with a gravel area in the foreground and a forested hillside in the background. The text is overlaid on the image.

# **Lewiston Spawning Gravel Introduction and Interim Coarse Sediment Solution**

**USGS Cableway: RM 110.2  
September 4-15, 2003**





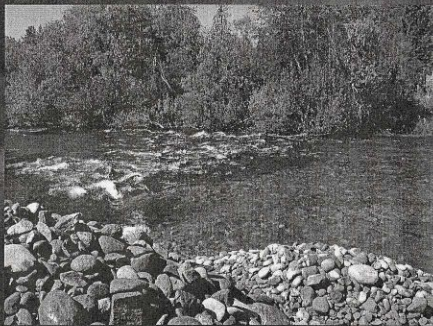
# Purpose of Project:

**Restore Coarse Sediment  
below Trinity Dam**

**Increase Spawning and  
Juvenile Rearing  
Habitat**



- **Restore Geomorphic  
Materials: Facilitate  
Alluvial Processes**



# History:



- Contract Awarded in 2002
- Concerns About Previous Gravel Additions
- Protest Delayed Implementation

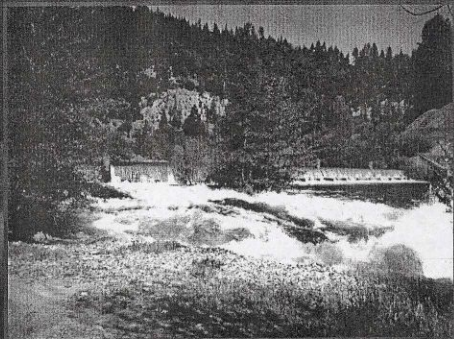


# Previous Gravel Additions:



- Required High Flow Recruitment

- Indirect Placement at the Diversion Pool



## Concerns:

- Placement Methods & Timing
- Potential for Habitat Loss
- Use of Non-Native Materials
- Contamination (sediment & Hg)
- Routing of Gravel through the Entire System
- Long-term Evaluation and Planning
- Need for Long-term Coarse Sediment Management Plan (CSMP)

# Protest Delayed Implementation

## ENVIRONMENTAL COMPLIANCE

- National Environmental Policy Act (NEPA)
- California Environmental Quality Act (CEQA)



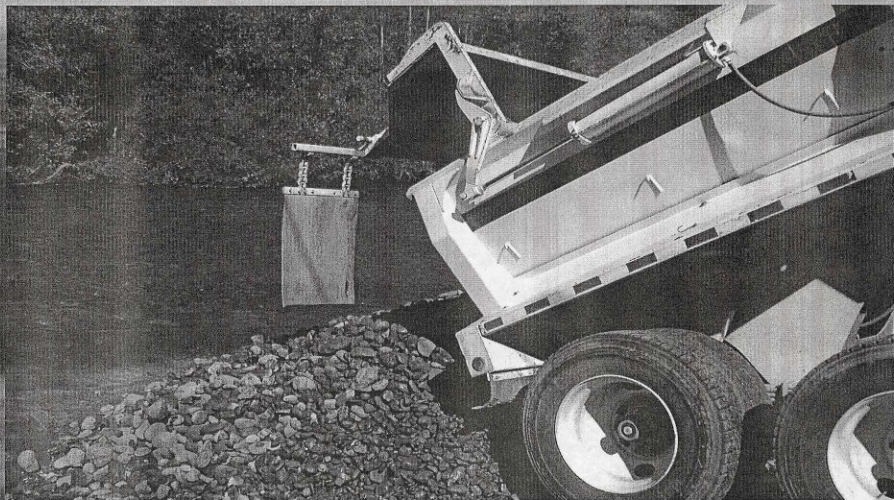
## Project/Contract

### Specifications:

- **Coarse Sediment: 2,000 yd<sup>3</sup> (3,000 Tons)**  
**½ to 5 inch rounded Trinity Basin rock**
  - Gradation: Slightly broader than spawning gravel
    - ✓ 5-inch sieve (98% - 100% passing)
    - ✓ 2-inch sieve (06% - 80% passing)
    - ✓ ½-inch sieve (0.0% - 5.0% passing)
  - Cleanliness: Pass CalTrans Cleanliness Test #227  $\geq 85$ 
    - ✓ Excludes fines (< 2.0 mm). Helps meet turbidity standards
    - ✓ Eliminates Mercury concerns
  - Placement:
    - ✓ Directly place gravel in river channel (325-ft long by 89-ft wide)
    - ✓ At a depth of 12 inches (+/- 3 in) from the 450 cfs surface
  - Post-Project survey for evaluation and monitoring

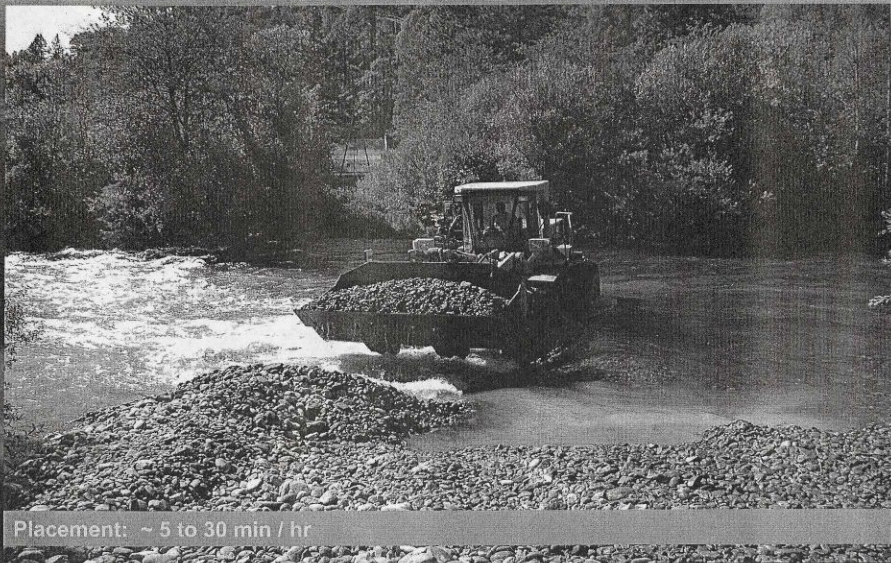


# Implementation



Delivery: up to 5 trucks ~ 1 truck (25 tons) / hr = 125 tons / hr maximum

# Implementation:



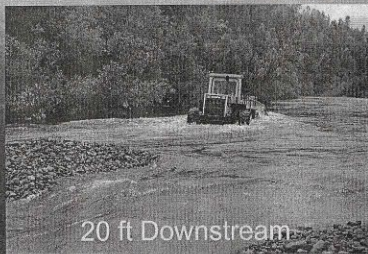
Placement: ~ 5 to 30 min / hr



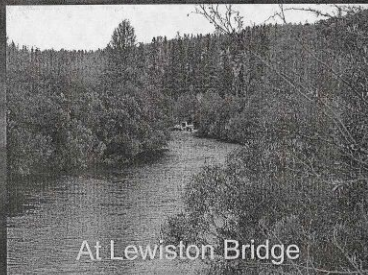
# Turbidity:

Monitor: Every 2 hours

- a) 50 ft Upstream
- b) 20 ft Downstream
- c) 300 ft Downstream

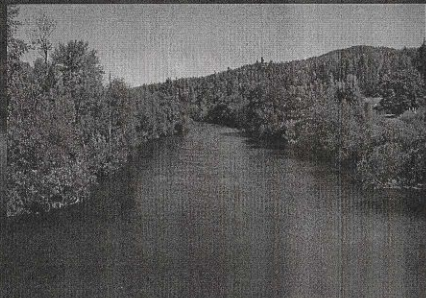
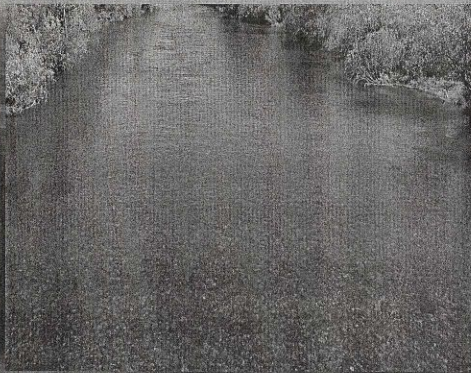


20 ft Downstream



At Lewiston Bridge

# Turbidity

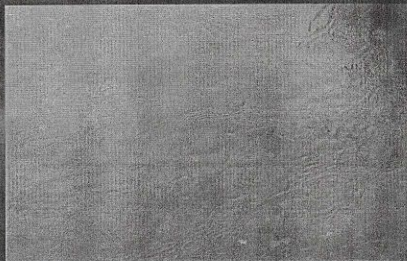
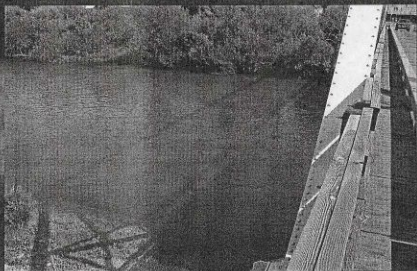
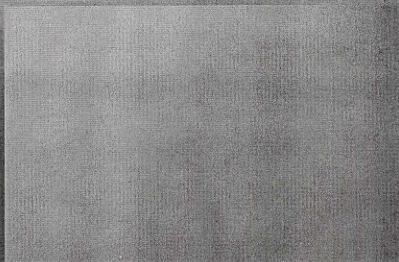


BACKGROUND:  
**Nephelometer Turbidity**  
**Units = 0.5-1.0**

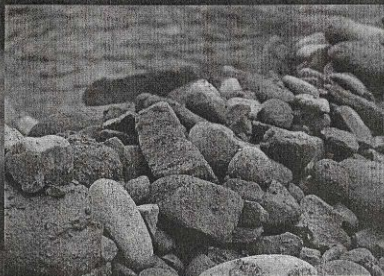
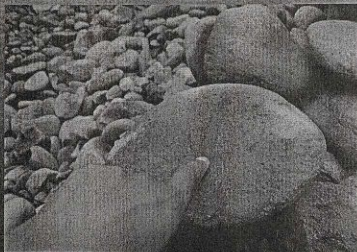


# Turbidity

➤ 20% above  
Background (0.5 NTUs)



# Turbidity & Cleanness?!

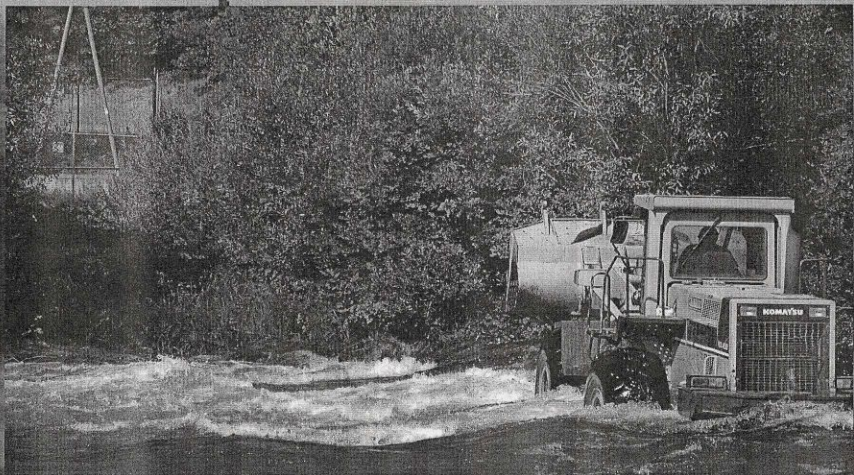


**CalTrans Cleanness  
Test #227 = 94**



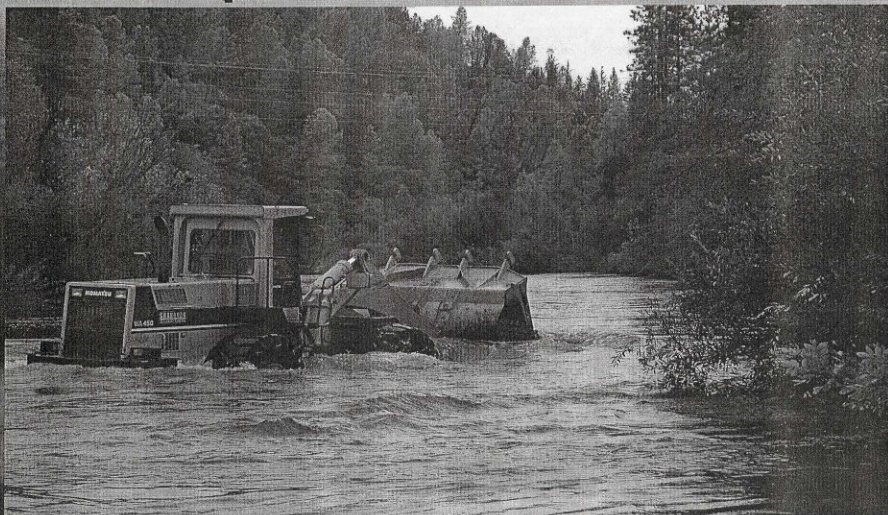
# Implementation

## DIRECT PLACEMENT



How critical is the final placement ?

# Implementation



Final Grading: to Elevation = 1804.3 ft ~ 4 hours at the end



# Post Project Survey:



# Lessons Learned:

## For DIRECT PLACEMENT: Riffle Supplementation

- Flows are variable
  - ✓ Contract based on elevations vs. Flows
- Maximize Contractor Access for Gravel Delivery
  - ✓ Multiple Access Points
  - ✓ Clear Banks
- CalTrans #227 "clean" gravel causes short-term Turbidity
  - ✓ Enhance cleanness value from 90 to 95
- Post-project surveys should match AEAM guidelines
- Traffic and noise complaints from property owner
  - ✓ Include access routes in Contract Specifications
- It took 2 weeks to put in 2,000 yd<sup>3</sup> (3,000 Tons).  
What about 67,000 yd<sup>3</sup>?
  - ✓ Solution = to be developed in the  
Coarse Sediment Management Plan



# Turbidity Wrap UP:

Sediment BMPs in  
place post-project

